4.02 GEOMETRIC DEFICIENCIES

A. Curves

The roadway's two substandard horizontal curves are located between Stoughton and McFarland. They would be adequate for a posted speed limit of 40 mph but traffic tends to travel at 60 mph in this area. There are no advisory speeds posted for these curves.

Figure 4.02-2 No Left or Right Turn Lanes Intersection of Lake Kegonsa Road and USH 51

The roadway has at least five substandard vertical curves. Four of these are located between Stoughton and IH 39/90 and are adequate for a design speed of 50 to 55 mph while traffic in this area travels at 60 mph. Two curves are located just west of CTH W and the other two are located just east of Spring Road. The fifth curve identified as substandard is located within Stoughton and would be adequate for a design speed of 25 mph while traffic in this area tends to travel at 30 mph. There are no advisory speeds posted for these curves.

Curve data was not available for three roadway segments: IH 39/90 to CTH W, CTH N to Page Street, and STH 138 (west) to Jackson Street/Hults Road. The horizontal and vertical curves on these segments could not be evaluated for adequacy. Visual inspection suggests that the horizontal and vertical curves near the railroad crossing in Stoughton may be substandard (see Figure 4.02-1).

B. Intersection Geometries

At many rural intersections, USH 51 has no designated turning lanes. Figure 4.02-2 shows an example of this geometry. At Lake Kegonsa Road, USH 51 through vehicles share a single lane with left and right turning vehicles. USH 51 has an exclusive left turn lane at only one rural intersection: CTH A just west of IH 39/90.

Several intersections have bypass lanes, and several have designated right turn lanes that are frequently used as bypass lanes.

Figure 4.02-1 Horizontal/Vertical Curve East of Stoughton Railroad Crossing

Within the urban areas of Stoughton and McFarland, there are few right turn lanes.

Figure 4.02-3 Retaining Wall at Rutland Dunn Town Road

C. Two-Lane Passing Conditions

Availability of passing opportunity is based on roadway geometrics and traffic volumes. The study team selected three stretches of USH 51 and evaluated the passing opportunities. The sections are:

- Between Mahoney Road and Dyreson Road
- Between Quam Drive and CTH B (east)
- Between Tower Drive and Washington Road

The results of the operations analysis for these portions of USH 51 are discussed in Section 4.03. For USH 51 between Mahoney Road and Dyreson Road, both northbound and southbound vehicles are permitted to pass on approximately 45 percent of the highway. Between Quam Road and CTH B (east) northbound vehicles are permitted to pass on approximately 38 percent of the highway while southbound vehicles are permitted to pass on 48 percent of the highway. Between Tower Drive and Washington Road, eastbound and westbound vehicles are permitted to pass on approximately 65 percent of the highway.

This report is intended to identify existing and anticipated future needs on USH 51 within the study corridor, not to suggest improvements. The low rates of available passing noted above suggest that improving the existing driver comfort level on USH 51 can be considered a need. As traffic volumes increase, driver comfort will continue to decline as will the ability to pass.

D. Other Deficiencies

The standard clear zone width of 30 feet is deficient at the intersection with Rutland Dunn Town Road, where a retaining wall in the northwest corner is 18.5 feet from the southbound USH 51 travel lane (see Figure 4.02-3).

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